

Missouri Department of Natural Resources

## Total Maximum Daily Load Information Sheet

### Tributary to Pond Creek

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#### Waterbody Segment at a Glance:

**County:** Washington  
**Nearby Cities:** Mineral Point, Potosi  
**Length of impairment:** 0.5 miles  
**Pollutant:** Nonvolatile Suspended Solids (NVSS)  
**Source:** Barite Tailings Pond



**TMDL Priority Ranking:** Low

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#### Description of the Problem

##### Beneficial uses of Tributary to Pond Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health associated with Fish Consumption

##### Use that is impaired

- Protection of Warm Water Aquatic Life

##### Standards that apply

- Standards for nonvolatile suspended solids (NVSS) may be found in the general criteria section of the WQS, 10 CSR 20-7.031(3)(A) and (C) where it states:
  - Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
  - Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.

#### Background Information and Water Quality Data

Non-Volatile Suspended Solids (NVSS) are mineral solids (like silt, sand or gravel) that are associated with soil erosion or erosion of mine-waste materials or stockpiles. When these solids get into a stream, they settle onto the bottom and smother natural substrates (materials in the streambed), aquatic invertebrate animals and fish eggs.

Barite, or barium sulfate, is mined in many areas of southern and eastern Washington County and southwestern Jefferson County. Also known as “tiff”, barite is a mineral used in well-drilling mud, chemical manufacture, fillers and extenders, face powders, chocolate coatings, glass making, with X rays and in paint. The first step in processing barite is to wash the mined material to separate the barite ore from the red clay and gravel found with it. The separated clay and gravel are discharged to barite tailings ponds and allowed to settle out. Overflows of water from these tailings ponds can contain suspended clay material that subsequently is deposited in the bottom of receiving streams.

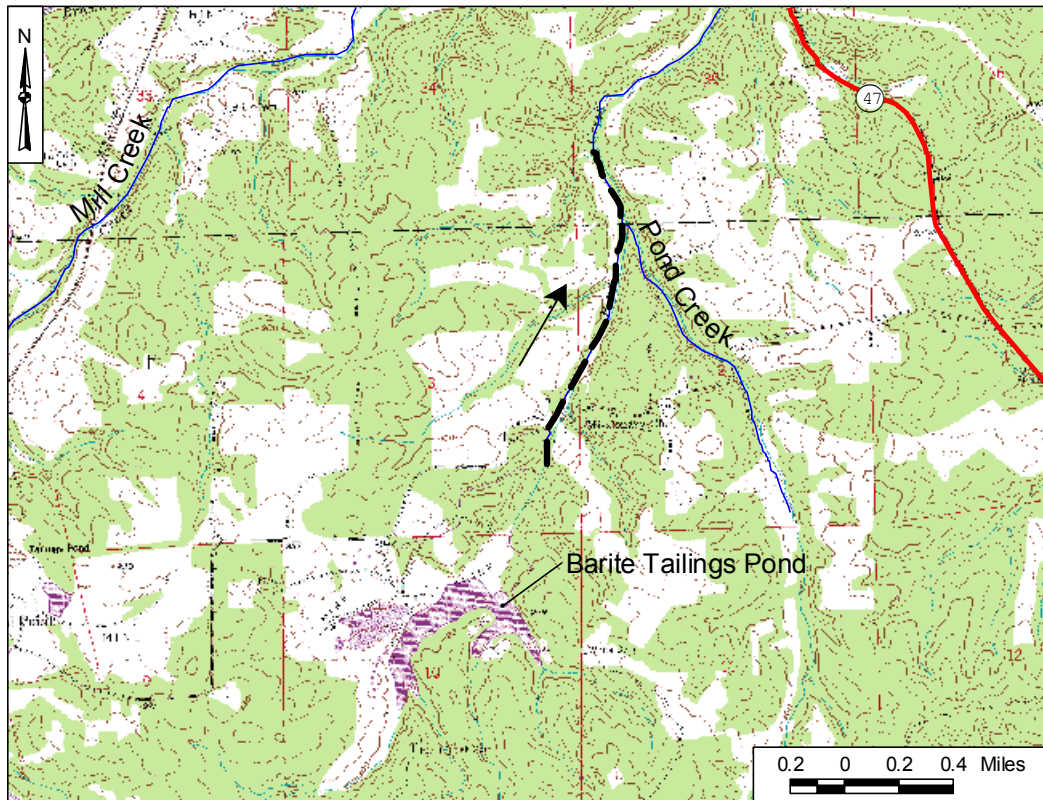
The deposited red clays constitute the NVSS that may impair this stream. Visual inspections of a tributary to Pond Creek have been conducted immediately downstream of an active barite settling pond. For several years, inspections of this stream have shown an excessive amount of clay fines are being deposited in the stream. In October 2002, the Department of Natural Resources conducted a qualitative examination of the aquatic invertebrate benthic community of this stream, two other streams with inactive barite tailings ponds and one stream without a barite tailings pond which was used as a control. The results of this survey are summarized in the table below.

Summary of Qualitative Aquatic Invertebrate Sampling of Four Streams in Washington County, Oct. 2002		
Stream	Total Number of Taxa	Total Number of EPT* Taxa
Tributary to Pond Creek – active tailings pond	23	7
Tributary to Mineral Fork - inactive tailings pond	20	6
Rubeneau Creek –control	16	6
Shibboleth Branch - inactive tailings pond	17	5

\* EPT= Ephemeroptera, Plecoptera and Trichopters (Mayflies, Stoneflies and Caddisflies)

For reference (high quality) streams in this area of the state, the number of EPT taxa in the 25<sup>th</sup> percentile is eight. Given that these reference streams are all larger in size than the four streams listed in Table One, all other things being equal, they should have slightly more taxa than these smaller streams. Thus the seven EPT taxa found in the tributary to Pond Creek probably represents a typical number for an unimpaired stream of this size in this area of the state.

## Map of Impaired Segment of Pond Creek, Washington County



— — — — Impaired segment

—————> Direction of Flow

### For more information call or write:

Missouri Department of Natural Resources

Water Protection Program

P.O. Box 176, Jefferson City, MO 65102-0176

1-800-361-4827 or (573) 751-1300 office

(573) 526-5797 fax

Program Home Page: [www.dnr.mo.gov/wpscd/wpcp/index.html](http://www.dnr.mo.gov/wpscd/wpcp/index.html)